

Application No. 10/584,010  
September 22, 2009  
Reply to Office Action of 22 July 2009

### **REMARKS / ARGUMENTS**

The final Office Action dated July 22, 2009, has been carefully reviewed and the following remarks are responsive thereto. Claims 1-13 remain pending. Reconsideration, withdrawal of the finality of the Office Action and allowance are respectfully requested.

#### ***Claim Rejections - 35 USC§102***

Claims 1-2, 6-10, and 13 are rejected under 35 U.S.C. 102(e) as being unpatentable over Paul Vagnozzi (U.S. Patent Publication 20030135495, hereafter, “*Vagnozzi*”). Applicants respectfully disagree for the following reasons.

To anticipate a claim, a single reference must disclose each element of that claim.

**Claim 1** provides a method for fast locating records on a data page in a database, wherein the records on each data page form a linear record chain, comprising the steps of:

(1) setting an ordinal-array directory structure composed of a group of record deviations at the end of a data page, in which, a record deviation is a position deviation of a record on the data page; each directory in the directory structure is called dir\_slot, and each dir\_slot stores the position deviation of one record; the deviation of one record is selected to be stored in dir\_slot every certain number of records; and

(2) searching for relative records in the dir\_slot by adopting a locating algorithm, after locating one certain dir\_slot, searching the relative group of records of the data page in order according to the record deviation stored in the dir\_slot and locating the record to be searched for accurately, and output the deviation of the record for displaying or updating the record.

Applicants respectfully submit that *Vagnozzi* does not disclose or suggest each and every element of claim 1 of the present invention:

a) the element of “setting an ordinal-array directory structure composed of a group of record deviations at the end of a data page, in which, a record deviation is a position deviation of a

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record on the data page; each directory in the directory structure is called dir\_slot, and each dir\_slot stores the position deviation of one record; the deviation of one record is selected to be stored in dir\_slot every certain number of records” is not found in *Vagnozzi*

For example, in claim 1 of the present invention, the deviation of one record is selected to be stored in dir\_slot every certain number of records. That is to say, in claim 1 of the present invention, not the position deviation of all records is stored in the dir\_slot. (please see the second paragraph under Summary of the Present Invention in the description of the present invention). In response to the Office Action assertion that *Vagnozzi* discloses the deviation of one record is selected to be stored in dir\_slot every certain number of records in paragraph [0036] and figure 1, the cited portions of *Vagnozzi* make no reference to such elements. But in fact, there is no “dir\_slot” in which the deviation of one record is selected to be stored *every certain number of records* in *Vagnozzi*. In particular, from figure 1 of *Vagnozzi*, it can be clearly seen that the index of all records is stored in the table. Thus the record disclosed by *Vagnozzi* is not equivalent to the dir\_slot recited in claim 1 of the present invention. *Vagnozzi* does not disclose the recited “dir\_slot” in claim 1 of the present invention.

For another example, the method defined in claim 1 of the present invention comprises “setting an ordinal-array directory structure composed of a group of record deviations at the end of a data page”. However, *Vagnozzi* does not involve any concept of setting an ordinal-array directory structure composed of a group of record deviations “at the end of a data page”.

b) the element of “searching for relative records in the dir\_slot by adopting a locating algorithm, after locating one certain dir\_slot, searching the relative group of records of the data page in order according to the record deviation stored in the dir\_slot and locating the record to be searched for accurately, and output the deviation of the record for displaying or updating the record” also is not found in *Vagnozzi*

In claim 1 of the present invention, according to the record deviation stored in the dir\_slot, “the relative group of records of the data page in order” can be searched after locating one certain dir\_slot. In other words, although each dir\_slot only stores the position deviation of

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one record in claim 1 of the present invention, the each dir\_slot actually can correspond to a number of records. Additionally, when searching, the method in claim 1 of the present invention first searches the relative record in the dir\_slot which can correspond to a number of records by adopting a fast dichotomizing locating algorithm, rather than search the specific record to be searched directly (please see the second paragraph under Summary of the Present Invention in the description of the present invention). However in *Vagnozzi*, only a table of records in which each record corresponds to an offset is disclosed. *Vagnozzi* does not disclose any “dir\_slot” which can correspond to a number of records. Furthermore, the method disclosed by *Vagnozzi* is to search the specific record to be searched **directly**, *rather than* search the relative record in the dir\_slot by adopting a fast dichotomizing locating algorithm.

For at least the above reasons, *Vagnozzi* does not disclose or suggest each and every element of the Applicants’ claim 1, and therefore, claim 1 of the present invention should be allowed over the cited reference. Accordingly, Applicants respectfully submit that the rejection based on 35 U.S.C. 102(b) is overcome and should be withdrawn.

In addition, the technical solution defined by claim 1 of the present invention also conforms to 35 U.S.C. 103(a). As discussed in the above analysis, it can be seen that claim 1 of the present invention has at least the following distinguishing technical features with respect to *Vagnozzi*:

a) The method in claim 1 of the present invention comprises “setting an ordinal-array directory structure composed of a group of record deviations at the end of a data page, in which, a record deviation is a position deviation of a record on the data page; each directory in the directory structure is called dir\_slot, and each dir\_slot stores the position deviation of one record; the deviation of one record is selected to be stored in dir\_slot every certain number of records”. However, *Vagnozzi* does not suggest or teach these technical features.

First of all, as mentioned above, in claim 1 of present invention, the deviation of one record is selected to be stored in dir\_slot every certain number of records, therefore not the position deviation of all records is stored in the dir\_slot. However, *Vagnozzi* does not teach or

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suggest this technical feature. Actually, as can be clearly seen from figure 1 of *Vagnozzi*, the index of all records is stored in the table. Thus the record disclosed by *Vagnozzi* is not the recited “dir\_slot” in claim 1 of the present invention.

Additionally, since the directory structure in the present invention is set at the end of the page, it is unnecessary to preset space on the page, and the records on the page are managed efficiently (please see the last paragraph in the description of the present invention). Thus by employing this scheme defined in the present invention, “it avoids the requirement of presetting space for dir\_slot. Thus, when adding or deleting records, it is not necessary to consider how many records have been stored and how many dir\_slots have been used” (please see the first paragraph under Preferred Embodiment of the Present Invention in the description of the present invention). Clearly, *Vagnozzi* does not teach or suggest this technical feature.

b) The method in claim 1 of the present invention comprises “searching for relative records in the dir\_slot by adopting a locating algorithm, after locating one certain dir\_slot, searching the relative group of records of the data page in order according to the record deviation stored in the dir\_slot and locating the record to be searched for accurately, and output the deviation of the record for displaying or updating the record”. Again, *Vagnozzi* does not suggest or teach these technical features.

For example, in claim 1 of the present invention, according to the record deviation stored in the dir\_slot, “the relative group of records of the data page in order” can be searched after locating one certain dir\_slot. In other words, in claim 1 of the present invention, each dir\_slot actually can correspond to a number of records. When searching, the method in claim 1 of the present invention first searches the relative record in the dir\_slot, which can correspond to a number of records, by adopting a fast dichotomizing locating algorithm, rather than search the specific record to be searched directly (please see the second paragraph under Summary of the Present Invention in the description of the present invention). *Vagnozzi* does not disclose any “dir\_slot” which can correspond to a number of records. In *Vagnozzi*, only a table of records in which each record corresponds to an offset is disclosed. The method disclosed by *Vagnozzi* is to

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search the specific record to be searched **directly**, *rather than* search the relative record in the dir\_slot by adopting a fast dichotomizing locating algorithm. By the method disclosed in *Vagnozzi*, the search efficiency on a page is quite low, which leads to a low efficiency of database search (please see the paragraph under “Technical Background” in the description of the present invention for details). Whereas in the method disclosed in claim 1 of the present invention the speed for locating data record in database is greatly improved.

In summary, by the method defined in claim 1 of the present invention, with at least the above distinguishing technical features, the speed for locating data record in database is greatly improved, the requirement of presetting space for dir\_slot is avoided, the records on the page is efficiently managed (please see the last paragraph in the description of the present invention). *Vagnozzi* does not provide any relative teachings for one of ordinary skill in the art to acquire the technical scheme defined in claim 1 of the present invention with the above distinguishing technical features and further solves the technical problem to be solved in the present invention.

Furthermore, Kosas (U.S. Patent Publication 20020095421) also fails to suggest or teach at least the distinguishing features listed above.

Therefore, the subject matter in claim 1 would have been non-obvious at the time the present invention was made to a person having ordinary skill in the art to which said subject matter pertains. There is no suggestion or motivation in the prior art to combine *Vagnozzi* with the distinguishing features in order to form a scheme claimed in claim 1 of the present invention.

For at least the above reasons, Applicants respectfully submit claim 1 conforms to the provisions of 35 U.S.C. 103(a) as non-obviousness.

**Claims 2, 6-10, and 13** depend on claim 1 directly or indirectly. Thus, for at least the reasons mentioned above in regard to independent claim 1, claims 2, 6-10 and 13 are allowable and conform to the provisions of 35 U.S.C.102(e) and 35 U.S.C. 103(a). Accordingly, reconsideration and withdrawal of the rejection of these claims are requested.

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***Claim Rejections - 35 USC§103***

Claims 3-5, and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paul Vagnozzi (U.S. Patent Publication 20030135495) in view of Elie Kosas (U.S. Patent Publication 20020095421).

As stated above, independent claim 1 complies with both the requirements of 35 U.S.C.102(e) and 35 U.S.C.103(a); it is believed that none of the cited references anticipate the claims as previously presented nor would a combination of any such reference make the claims obvious. Thus Applicants respectfully submit that dependent claims 3-5, and 11-12, directly and indirectly citing independent claim 1, are also in conformity with the provisions of 35 U.S.C.103(a) and are therefore allowable.

**Conclusion**

The Applicants believe they have responded to each matter raised by the Office Action. Allowance of the claims is respectfully solicited. It is believed that the present patent application, after the above statement of opinions, has overcome all the defects pointed out by the Office Action and is in conformity with the relevant provisions, so it should be granted patent rights. The Applicants respectfully request early granting of a notice of allowance for this application. However, if there are still concerns that the Examiner has concerning the present application, or that some issue has not been overcome by the above remarks, Applicants respectfully request the withdrawal of the finality of the present Office Action and further prosecution of the application.

Applicants hereby respectfully request withdrawal of the finality of the Office Action and reconsideration and reexamination thereof. It is believed that no further fee or petition is necessary as a result of this response. However, should any further fee be needed, please charge Deposit Account No. 23-0920, and deem this paper to be the required petition.

With the above remarks, this application is considered ready for allowance and Applicant earnestly solicits an early notice of same. However, if the Examiner believes otherwise, an

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Advisory Action is respectfully solicited. Should the Examiner be of the opinion that a telephone conference would expedite prosecution of the subject application, he/she is respectfully requested to call the undersigned at the below listed number.

Respectfully submitted,



Dated: 22 September 2009

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